

Applicants : Naldini et al. Atty. Dkt. No. : 1130-PCT-US
USSN : 10/554,181 Art Unit : 1636
Filed : 12/27/2005 Date of Office Commn. : 11/12/2009
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AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions of claims in the application:

1. (Currently Amended) A bidirectional promoter for expression of at least two coding sequences in opposite direction in animal cells comprising 5' end to 3' end:
 - a) a first minimal promoter sequence of cytomegalovirus (CMV) or mouse mammary tumor virus (MMTV) genomes;
 - b) [a] an eukaryotic promoter sequence of an animal gene comprising an enhancer region and a second minimal promoter sequence; the two promoter sequences driving a coordinate transcription of said coding sequences in the opposite orientation.
2. (Canceled)
3. (Previously Presented) The bidirectional promoter according to claim 1 wherein the animal gene is an ubiquitously expressed gene comprising the phosphoglycerate kinase or the ubiquitin gene.
4. (Previously Presented) A bidirectional expression cassette essentially comprising the bidirectional promoter according to claim 1, convenient insertion sites positioned downstream to each promoter, and polyadenylation sites positioned downstream to each insertion site.
5. (Original) The bidirectional expression cassette according to claim 4 further comprising at least one post-transcriptional regulatory element positioned upstream to one or each polyadenylation site.

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6. (Previously Presented) The bidirectional expression cassette according to claim 4 further comprising at least one internal ribosome entry site (IRES) sequence to express three or more genes.
7. (Previously Presented) An expression construct containing the bidirectional promoter according to claim 1.
8. (Previously Presented) An expression construct containing the bidirectional expression cassette according to claim 4.
9. (Previously Presented) A gene transfer expression vector containing the expression construct according to claim 7 further comprising lentiviral or retroviral sequences.
10. (Previously Presented) A method for the delivery and expression of multiple genes in animal cells comprising the gene transfer expression vector according to claim 9.
11. (Previously Presented) The method according to claim 10 wherein animal cells are tissue animal cells ex vivo.
12. (Previously Presented) The method according to claim 11 wherein the tissue animal cells are brain neurons.
13. (Previously Presented) A method for the coordinate expression of two exogenous coding sequences in an animal cell comprising the following steps:
 - a) cloning said coding sequences into the gene transfer expression vector according to claim 9, each coding sequence under the control of one of the two promoters of the bidirectional promoter;
 - b) transforming animal cells by means of said vectors; and

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c) allowing the expression of the vector.

14. (Previously Presented) The method for the coordinate expression of two exogenous coding sequences according to claim 13 wherein the animal cell is an human cell.

15. (Previously Presented) The method for the coordinate expression of two exogenous coding sequences according to claim 14 wherein the human cell is a retransplantable human cell.

16. (Previously Presented) The method for the coordinate expression of two exogenous coding sequences according to claim 15 wherein the retransplantable human cell is an hematopoietic cell.

17. (Previously Presented) A method for generating a transgenic non human organism comprising the step of transforming appropriate cells with an expression construct containing the bidirectional cassette according to claim 7.

18. (Previously Presented) A method for generating a transgenic non human organism comprising the step of transforming appropriate cells by means of the gene transfer expression vector according to claim 9.